I. Project Title and Project Purpose Statement

Project Title:
Advancing Climate Resiliency and Adaptation through Neighborhood-Based Participatory Planning in the Underserved Eastwick Neighborhood of Philadelphia

Summary Description and Location of Proposed Project:
Clean Air Council (Council) will work with community members to develop a Climate Change Adaptation Plan that includes detailed resilience-building and adaptation strategies for the Eastwick neighborhood of Philadelphia. Eastwick (ZIP Code 19153) is a 6.9 square mile urban neighborhood in Philadelphia, Pennsylvania. It is located in the far southwestern corner of Philadelphia County and is bound by Darby Creek and Delaware County to the west, Interstate 95 and the Philadelphia International Airport to the south, and the Schuylkill River to the east (Figure 1). Eastwick's demographics, location, poverty, topography, land use, and existing environmental health stressors all contribute to the neighborhood's vulnerability to the impacts of severe weather.

Strong social connections greatly influence Eastwick's resilience to natural disasters, and its ability to adapt is shaped by the physical changes that need to be incorporated at the community level. Using a participatory scenario-planning model, the Council and its partners will work with community stakeholders (residents, small businesses, religious institutions, community groups) to understand how severe weather due to climate change impacts this neighborhood. Participatory Scenario Planning is a resident-driven approach to establish a common understanding of weather impacts by identifying the relationship between climate change and existing neighborhood vulnerabilities (e.g. poverty, lack of political influence, aging population), existing neighborhood infrastructure, and existing neighborhood and government resources. Understanding how all of these factors interact will allow neighborhood stakeholders to effectively devise a plan to establish resilience and adaptive measures against climate change.

Developing measurable resilience and adaptation strategies involves three discrete but related objectives: (1) identify and analyze forces and trends that affect community vulnerability to climate change stressors; (2) conduct scenario-planning workshops; and (3) devise a strategic action plan.

Qualified Environmental Statutes:
The proposed project relates to the Clean Air Act, Section 103 (b) (3) in that it is conducting research and public education into the prevention and control of exposure to air pollution. The project also relates to Clean Water Act, Section 104 (b) (3) in that it conducts research into the causes, effects and reduction of exposure to water pollution.

II. Environmental & Public Health Information about the Affected Community

Existing community vulnerabilities affect the long term ability of the neighborhood to respond, withstand and recover from weather-related climate change impacts. Social and economic factors – such as age, race, income and social isolation – influence a neighborhood's resilience against severe weather impacts. Academic literature shows that low-income individuals are more vulnerable to the impacts of severe weather disasters; lower income residents are often under-insured and more likely to endure critical home damage as a result of poorer quality housing.

Eastwick's socioeconomic and environmental characteristics increase its vulnerability to climate change impacts such as extreme weather. Eastwick is a predominantly African-American (73.2%) neighborhood with high unemployment (15.7%) and low income levels. More than 10 percent of neighborhood households earn less than $10,000 annually, and more than 28 percent earn less than $25,000 annually.[1] Such economic pressures challenge Eastwick's future viability as a residential neighborhood. Eastwick is located within a floodplain, where the Schuylkill and Delaware Rivers meet in southwestern Philadelphia. Flat low-lying marshy lands along with rising tides from the adjacent Darby and Cobbs Creeks has resulted in Eastwick being prone to serious flooding which presents health and economic risks, and physical hazards to residents.

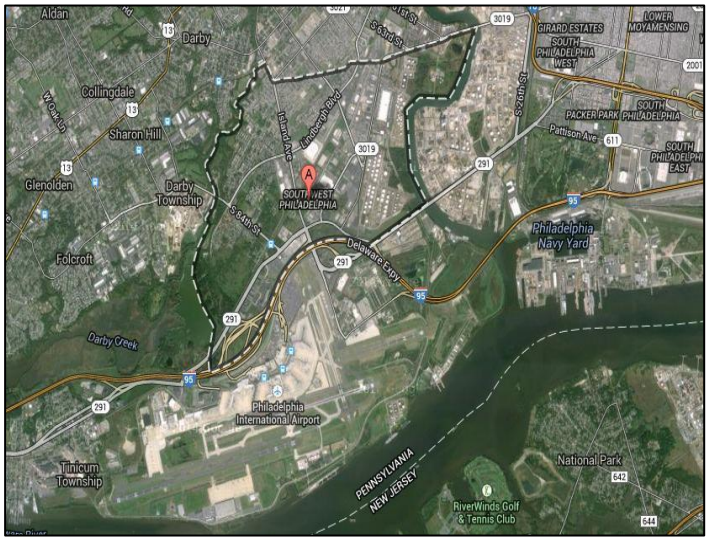


Figure 1. Map of Eastwick Neighborhood

Frequent moisture infiltration has compromised livability of local housing stock by threatening the structural integrity of buildings and promoting serious indoor air hazards such as mold.
Apart from physical hazards, flooding creates other additional public health risks to residents from chemical leachate from the neighborhood's two U.S. Environmental Protection Agency (EPA) Superfund sites – the Folcroft and Clearview Landfills. Remedial investigation by the EPA, completed in May 2011, identified unacceptable risks to human health in groundwater, surface soils, and subsurface soils in both Darby and Cobbs Creeks.[2]

Eastwick residents confront elevated health risks. A 2012 Pennsylvania Department of Public Health study compared the cancer rates in the ZIP code 19153 (Eastwick) area to statewide rates during the period of 1992 through 2008. A statistically significant 6 percent elevation in the incidence of cancer was seen in ZIP code 19153 when compared to the rest of Pennsylvania.[3] Liver cancer was shown to have a 109 percent increased incidence in ZIP code 19153 when compared to the rest of Pennsylvania. Vital Statistics (2010) estimates premature mortality attributable to cardiovascular disease to be 84.3 per 100,000.[4] According to the American Heart Association, a growing body of clinical evidence has associated ambient air pollution with increased cardiovascular disease.[5]
Elevated levels of air pollution from local sources are another major concern for community members. The EPA has classified the greater Philadelphia region to be in non-attainment of the 8-hour ozone and the PM 2.5 standard. Industrial zoned land in Eastwick accounts for 52 percent of local acreage and is the area's dominant land use.[6]

---

[1] U.S. Census Bureau. (2013). American Community Survey, American Fact Finder

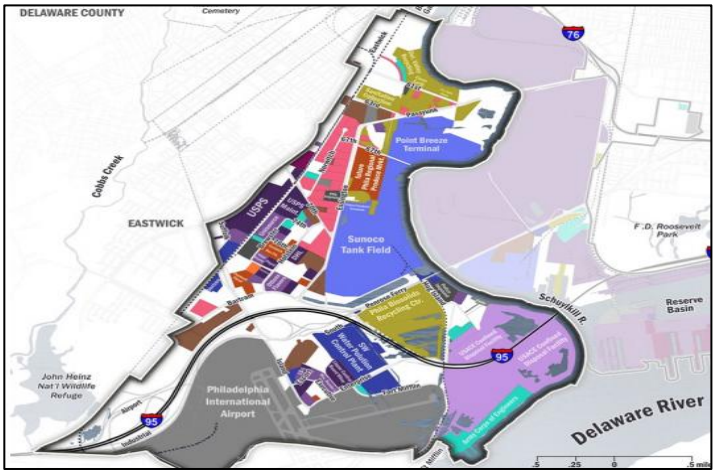
[2] http://www.epa.gov/reg3hscd/npl/PASFN0305521.htm

[3] Pennsylvania Department of Public Health. (2012).Cancer Incidence Analysis: ZIP Code 19153. Letter Health Consultation. Retrieved from http://www.epa.gov/reg3hscd/npl/PASFN0305521/reports/PADOH_EastwickCancerIncidenceAnalysis%28Feb_2012%29.pdf

[4] Philadelphia Department of Public Health. (2014). Community Health Assessment. Retrieved from http://www.phila.gov/health/pdfs/CHA%20slides_52114_revised.pdf

[5] American Heart Association. (2004)."Air Pollution and Cardiovascular Disease." *AHA Scientific Statement*. http://circ.ahajournals.org/content/109/21/2655.full

[6] Philadelphia Industrial Development Corporation. (2010). *An Industrial Land & Marketing Strategy for the City of Philadelphia*. Retrieved from http://www.icic.org/ee_uploads/pdf/PIMLUS_Report_September_2010.pdf

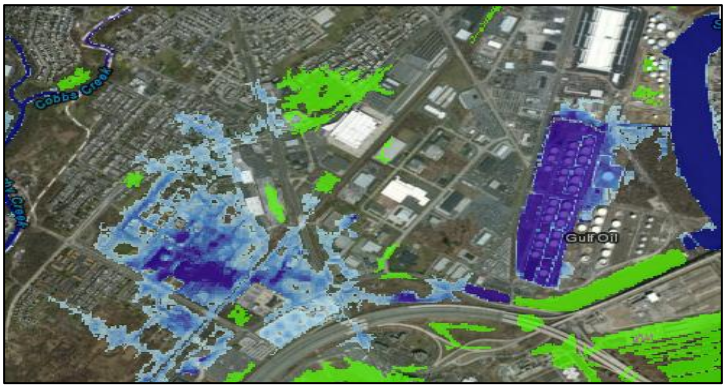


Eastwick is host to a number of Philadelphia's largest air pollution emitting facilities, including the Philadelphia International Airport (PHL), the Philadelphia Energy Solutions (formally Sunoco) refinery, two electric power plants, a United States Postal Service facility, a 677,0000 square feet food distribution center, and traffic from Interstate 95 (Figure 2).

Extreme weather fueled by climate change will only exacerbate Eastwick's existing vulnerabilities.

Figure 2. Map of Eastwick Industrial Section

Development of both Eastwick and the Philadelphia airport (PHL) led to the destruction of the last acres of Philadelphia's freshwater tidal wetlands, weakening Southwest Philadelphia's natural buffer from catastrophic flooding. Impending expansion of PHL will develop considerable portions of a 128-acre green space within a flood zone adjacent to the neighborhood, significantly increasing impervious surface area. Eastwick is vulnerable to the effects of sea level rise as a result of its low-lying lands and proximity to the Delaware Estuary. The Delaware River will swell from elevated water levels in the Delaware Estuary due to sea level rise in the Atlantic Ocean. Considerable portions of Eastwick, including the vast refinery complex along the Schuylkill, will be inundated since the land is located approximately one meter above high tide.



Climate projections also suggest Philadelphia may experience yearly 17 to 52 days where temperatures are above 95 degrees Fahrenheit.[7] A rise in the number of days with extreme heat will not only worsen ambient air quality such as ozone, it will also increase the impact of the heat island effect that is particularly dangerous to older low-income residents.

Figure 3. Eastwick Vulnerability at 3 Feet Sea Level Rise

Greater exposure to ground-level ozone will reduce lung function and increase respiratory discomfort, especially among sensitive groups such as elderly populations. This is significant for Eastwick given that it has a median age of 39.5 years, and more than 25 percent of households include individuals who are 65 years of age or older.[8] Asthma affects a substantial portion of elderly populations.[9]

---

7 *Ibid.*

8 U.S. Census Bureau. (2013). American Community Survey, American Fact Finder

9 Oraka, E., Kim, H. J., King, M.E., and Callahan, D. B.(2012). Asthma prevalence among US elderly by age group: age still matters. PubMed. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22765313

III. Organization's Historical Connection to the Affected Community

The Council has an active environmental justice program, and is a board-approved priority. Council community organizers, environmental educators, and attorneys are involved in environmental justice communities in the Philadelphia area, the Greater Pittsburgh area, Wilmington DE area, and rural Pennsylvania.

The Council has worked with neighborhood residents in South and Southwest Philadelphia since the 1980's helping them address such issues as pollution from the Sunoco refinery, the building of a new regional postal center, and the proliferation of illegal auto body shops.

More recently, the Council worked with the community members to successfully get PES Refinery to get them to reduce their emissions and help block the construction of a large, short-term stay hotel because of community concern about increased flooding. Finally, the Council is working to complete the Cobbs Creek Connector Trail which will give community members to recreation areas.

IV. Project Description

Neighborhood-led planning approaches effectively identify (1) the best ways to increase neighborhood resilience and (2) the most appropriate adaptation strategies for that neighborhood. Resiliency evaluation and adaptation planning conducted over broader geographic areas often yield adaptation strategies that are too general to adequately address neighborhood-specific challenges and ignore a particular neighborhood's needs and potential.

Neighborhood focused approaches provide for more inclusive and sustained engagement. Following Hurricane Sandy, the New York City Department of City Planning (DCP) began implementing the Resilient Neighborhood initiative as part of the City's long-term resiliency. Within ten neighborhoods across all five boroughs, DCP identifies community-specific issues and develops local strategies to support resiliency of communities situated in flood zones. By engaging organizations that have the greatest sense of local need, the Resilient Neighborhood initiative aims to produce tailored interventions which increase local capacity to cope with a disruptive weather event.

The Council proposes to work with project partners and neighborhood stakeholders (i.e. residents, small businesses, religious institutions, community groups) to develop a strategic action plan that identifies resilience and adaptation building strategies for the Eastwick neighborhood of Philadelphia. Using the participatory scenario-planning model, community stakeholders will (1) identify the social resources within the neighborhood, (2) determine how to strengthen such resources (resiliency), and (3) identify the most effective adaptation measures –short and long term—for this community. Participatory Scenario Planning is a resident-driven approach to establish a common understanding of severe weather effects by better understanding the relationship between local climate change impacts and existing neighborhood vulnerabilities (poverty, lack of political influence, aging population), existing neighborhood infrastructure, and existing neighborhood and government resources. A better understanding of how these all interact will allow neighborhood stakeholders to effectively develop a plan to increase neighborhood resiliency and adaptation strategies needed to mitigate the impacts of climate change.

<u>OBJECTIVE 1</u>: Identify and analyze forces and trends that affect community vulnerability to severe weather.

Task 1: Assess Eastwick's vulnerability to severe weather

The Council will work with community stakeholders to evaluate factors that contribute to Eastwick's vulnerability to climate-change-related impacts using governmental data and local knowledge to identify trends and locate danger zones. Stakeholders will develop a preliminary report on the neighborhood's understanding and assessment of its vulnerabilities to extreme weather.

Task 2: Assess Eastwick's resilience against severe weather impacts

The Council will work with community stakeholders to evaluate assets within the neighborhood that could be used to lessen the impact of climate change. Stakeholders will conduct an asset-based inventory to examine community strengths.

The Council, in conjunction with Drexel University, will assess social and economic factors that increase resilience to environmental and natural hazards by administering randomized household surveys in Eastwick. Surveys will obtain information including, but not limited to, social dependence, social exclusion, housing stock quality, and limitation in access to basic services. The survey results will be share with community members.

Task 3: Identify resources outside of Eastwick that could be used to reduce vulnerability

The Council will work with community stakeholders to evaluate resources outside of Eastwick that could be brought in to reduce vulnerability. Stakeholders will conduct an asset-based inventory to identify and build upon existing community strengths. The Council will help the community hold an open house where community leaders and residents could meet agencies that provide such outside resources (e.g. City of Philadelphia Air Management Services, Council for the Aging, Philadelphia Horticultural Society Tree Tenders) and discuss prospects of collaboration.

<u>OBJECTIVE 2</u>: Conduct public community meetings and scenario-planning workshops to increase the Eastwick community's awareness of their vulnerability and boost involvement:

Task 1: Hold a public community meeting with the Office of Sustainability to develop a profile of climate change impacts in Philadelphia

In conjunction with the Philadelphia Mayor's Office of Sustainability, the Council will hold a public meeting in Eastwick to discuss the broader issue of how the Philadelphia region is projected to be impacted by climate change, how the city is developing plans to address such impacts, and what it means for this neighborhood.

Task 2: Develop scenario narratives and frameworks with the Franklin Institute

Based on existing data and assessments from neighborhood residents, the Council, working with the Franklin Institute, will develop narratives that highlight the long-term harm caused by extreme weather (e.g. how regular serious flooding impacts this neighborhood in terms of economics, health, social cohesion, long term viability etc.).

Task 3: Hold issue-specific scenario planning sessions for the affected community to understand risks, impacts, and opportunities

The Council will help community members hold four stakeholder meetings to evaluate social, economic, public health, and environmental impacts of the most serious weather-related impacts on the neighborhood. These meetings will be facilitated with a project partner with the requisite expertise; each stakeholder information session will focus on particular areas of vulnerability such as outdoor environment, indoor environment, economic development, and land management.

<u>OBJECTIVE 3</u>: Devise a strategic action plan that advances climate resiliency and neighborhood adaptation.

Task 1: Review measurable resilience-building and adaptation strategies used in other neighborhoods

The Council in conjunction with the Mayor's Office of Sustainability will perform a literature review of how other low-income communities with similar characteristics have successfully implemented programs that address neighborhood resiliency and adaptation. Primary source information will be relevant laws and policies, academic publications, reports from government institutions and non-governmental organizations, and direct conversation with nonprofits working on similar issues in other areas.

Task 2: Conduct neighborhood surveys where Eastwick residents can comment on the newly adopted resilience-building and adaptation strategies

Local stakeholders will assess the relative effectiveness of identified strategies using a scoring matrix. Community members will then rank possible courses of action.

Task 3: Draft a Climate Change Adaptation Action Plan

After a majority of opinion has been reached on the most effective courses of action, the Council and its partners will draft a recommendation report using content derived from the literature review and stakeholders' workshop. The document will detail assessed community vulnerability; the process and rationale for resilience-building strategies; a suggested implementation plan to produce desired outcomes; and anticipated results from implementation. The action plan will be made available and distributed in hard copy and digital form.

Timeframe & Management Plan

Activities	Month -1	Month -2	Month -3	Month -4	Month-5	Month -6	Month -7	Month -8	Month -9	Month -10	Month -11	Month -12
Objective 1												
Identify the extent to which the community comes into contact with environmental stressors.												
Assess Eastwick's resilience against severe weather impacts												
Identify resources outside of Eastwick that could be used to increase resilience												
Objective 2												
Develop profile of climate change impacts and hold community meeting with the Office of Sustainability												
Develop scenario narratives and frameworks (Franklin Institute)												
Hold issue-specific information sessions for the affected community												
Objective 3												
Identify resilience-building strategies used in other neighborhoods												
Conduct surveys where residents can comment on resilience-building and adaptation strategies												
Draft a Climate Change Action plan												
Submit Progress Report to EPA												
Submit Final Report to EPA												

The Organization & Partners:

There is great diversity and expertise in the participating partners. This will ensure the mobilization of social, technical and legal resources needed for project success. Many of these partners also have a history of effective collaboration. The partners will meet regularly during the implementation of the project to discuss progress and how to overcome any barriers that might arise. Each partner has already committed to participate in this project and identified their role.

Clean Air Council: The Council is a member-supported, non-profit environmental organization dedicated to protecting everyone's right to breathe clean air. The Council has a history of working on environmental issues in Eastwick. For the purposes of this project, the Council will execute the following responsibilities: 1) provide technical expertise in environmental health, environmental law and urban planning; 2) track project progress and deliverables; 3) coordinate and oversee implementation of the stakeholder engagement process; 4) coordinate all project-related information and communications; and 5) ensure project objectives and deliverables are inclusive of all partners.

Eastwick Friends & Neighbors Coalition: Eastwick Friends & Neighbors Coalition (EFNC) is a community-based organization that plans for an environmentally, economically, and socially sustainable future, and their involvement in this project furthers this mission. EFNC will leverage its credibility as a community network builder and design a stakeholder engagement process that provides a framework for strengthening participatory engagement.

Philadelphia Mayor's Office of Sustainability: The Philadelphia Mayor's Office of Sustainability (MOS) is the city agency tasked with developing strategies that enhance environmental sustainability and climate change resiliency. Having conducted rigorous analyses on climate change risk, MOS offers considerable technical data and expertise on local vulnerability to climate change.

Drexel University: Drexel University is an academically comprehensive urban research university. Drexel has considerable expertise in community-based research design and methodology. Drexel will create and administer a household environmental health survey and conduct focus groups that assess (1) the impact climate factors will have and (2) the ability of the community to manage exposure to climatic stressors.

The Franklin Institute: The Franklin Institute recognizes that science and technology are essential to providing residents with an understanding of critical issues so that they can make informed decisions. In 2012, The Franklin Institute began the Climate and Urban Systems Partnership (CUSP), which is only one of six National Science Foundation's (NSF) Climate Change Education Programs (CCEPs) across the country. TFI will use its resources to develop downscaled climate scenarios that are local, relevant and solutions-focused, and present them to Eastwick residents in TFI's signature interactive and engaging style.

Public Interest Law Center of Philadelphia: The Public Interest Law Center of Philadelphia (PILCOP) is a non-profit law firm that uses dynamic legal strategies to address laws, policies, and practices that perpetuate discrimination, inequality and poverty. Advancing their commitment to a sustainable Eastwick community, PILCOP will provide key policy research and legal analysis on urban development, land use, and environmental planning to facilitate the development of measurable resilience-building strategies.

Empowered Community Development Corporation: Empowered Community Development Corporation is a community-based, non-profit organization focused on revitalizing Southwest Philadelphia through a range of initiatives including economic development and neighborhood planning projects. Empowered will provide expertise on ways to support local business growth and foster a sustainable local economy by facilitating a community stakeholder workshop during the project period. In addition, Empowered will provide opportunities to connect with institution resources that advance business development.

National Nursing Center Consortium: The National Nursing Centers Consortium (NNCC), a nonprofit organization, will provide expertise on ways to reduce household health risks through modification of occupant behaviors by facilitating a community stakeholder workshop during the project period. NNCC

has a long and successful history in providing a variety of environmental health services, with many focusing on household health hazards in vulnerable communities. NNCC currently manages the Southeastern Pennsylvania Lead and Healthy Homes Program on behalf of the Pennsylvania Department of Health.

V. Organizational Capacity and Programmatic Capability

The Clean Air Council has the requisite accounting and financial management skills to manage a yearly budget, implement an advanced accrual accounting system, manage cash flow, and create quarterly financial reports and annual audited financial statements. Clean Air Council's Administrative Director, Eric Cheung, has over 10 years of experience in managing the organization's finances and has an accounting background. Mr. Cheung oversees administrative matters for a full-time staff of 23 and tracks spending on several concurrent grants for various programs.

The Council's staff members have managed many federal grants over the organization's lifetime. Staff members hold regular meetings and are in constant communication with Mr. Cheung in order to accurately track spending, deadlines, deliverables, and other aspects of grant management. The Council uses Quickbooks Pro accounting software to manage, expend, and account for federal funds. The Council also maintains a Salesforce database to manage programmatic aspects of projects. These established organizational tools have proven to be effective in managing previous federal funds and will be used for the proposed project to ensure the project is effectively managed and successfully completed.

The Council's organizational experience in public health, community organizing, pollution control, environmental law, scientific and quantitative research, and grassroots advocacy is extensive. Since its founding in 1967, the Council has demonstrated high levels of competence, dedication, and expertise in each of these areas, creating a wealth of institutional knowledge. Collectively, the current staff boasts multiple law degrees, Masters in Public Health, Masters in Urban Planning and other advanced degrees to add to its extensive experience working on various programs. The Council and staff have been active in the project's targeted neighborhoods. . This work has led to strong relationships between the Council and community leaders from these neighborhoods as well as a familiarity of the neighborhoods' needs.

VI. Qualifications of the Project Manager

Saleem Chapman – Project Manager
Saleem Chapman is the Environmental Justice Program Manager and Policy and Strategy Coordinator for the Clean Air Council. Part of Mr. Chapman's responsibilities includes overseeing the Council's environmental justice work in Southwest Philadelphia. He has worked with local stakeholders to define community priorities and develop effective strategies to advocate for implementation. Prior to joining the Clean Air Council, Mr. Chapman spent three years with the Philadelphia Department of Public Health developing regulatory strategies for environmental compliance.

Joseph Otis Minott, Esq. – Executive Director
Joseph Otis Minott, Esq. has been the Executive Director for Clean Air Council for more than two decades and supervises all Council projects. Mr. Minott has developed statewide recognition for his work on urban air pollution issues. He holds an M.A. in political science from the University of Pennsylvania and a J.D. from Villanova University School of Law. Mr. Minott is a part-time professor of environmental issues and policy at the University of Pennsylvania.

VII. Past Performance in Reporting on Outputs and Outcomes List of Federal Grants and Agreements within Last 3 Years

1. U.S. EPA Environmental Justice Grant: (EQ 96318301) ($25,000) (10/2012 – 9/2013) (South Wilmington Air Quality Assessment Study) (Contact: James Garth Connor)

2. U.S. EPA Environmental Justice Grant: (EQ 96310201) ($30,319) (10/2011 – 9/2012) (Port Neighborhood Air Quality Assessment)(Contact: Erin Sullivan)

3. U.S. EPA Diesel Emissions Reduction Act (RE DE-97390801) ($350,000) (April 2010 – April 2011) (Delaware Valley Port Emissions Reduction Project) (Contact: Megan Goold)

In each case, the Council reported in a timely manner that progress was satisfactorily achieved. The Council uses a variety of evaluation measures to determine progress towards achieving outputs and outcomes. Management plans are used to ensure completion of implementation objectives (such as the collection of data). Pre- and post-test measures, in the forms of questionnaires, interviews, and other surveys, are used to determine the effect program activities have on reaching planned outputs and outcomes. Program staff meet regularly to discuss progress on meeting objectives. These assessments are all compiled and submitted in quarterly, semi-annual, and final reports to funding agencies.

VIII. Quality Assurance Project Plan

The proposed project will involve the collection of data and subsequent statistical and geospatial analysis. This project will require a Quality Assurance Project Plan (QAPP), which will be in place prior to the initiation of project activities.